Selected Abstracts from the March Issue of the European Journal of Vascular and Endovascular Surgery

Jean-Baptiste Ricco, MD, PhD, Editor-in-Chief, and A. Ross Naylor, MBChB, MD, FRCS, Senior Editor

The Strange Relationship between Diabetes and Abdominal Aortic Aneurysm

F.A. Lederle. Eur J Vasc Endovasc Surg 2012;43:254-6.

In a 1997 report of a large abdominal aortic aneurysm (AAA) screening study, we observed a negative association between diabetes and AAA. Although this was not previously described and negative associations between diseases are rare, the credibility of the finding was supported by consistent results in several previous studies and by the absence of an obvious artefactual explanation. Since that time, a variety of studies of AAA diagnosis, both by screening and prospective clinical follow-up, have confirmed the finding. Other studies have reported slower aneurysm enlargement and fewer repairs for rupture in diabetics. The seeming protective effect of diabetes for AAA contrasts with its causal role in occlusive vascular disease and so provides a strong challenge to the traditional view of AAA as a manifestation of atherosclerosis. Research focused on a protective effect of diabetes has already increased our understanding of the etiology of AAA, and might eventually pave the way for new therapies to slow AAA progression.

Total Endovascular Repair of Thoracoabdominal Aortic Aneurysms

Clough R.E., Modarai B., Bell R.E., Salter R., Sabharwal T., Taylor P.R., Carrell T.W. Eur J Vasc Endovasc Surg 2012;43:262-7.

Background: Endovascular graft designs incorporating sidebranches, fenestrations and scallops offer a minimally-invasive alternative to open surgery and hybrid approaches for thoracoabdominal aortic aneurysms (TAAA). Our unit has offered total endovascular TAAA repair to selected higher-risk patients since 2008. We report the largest UK series to date of total endovascular TAAA repair.

Methods: Retrospective analysis of a prospectively-maintained operative database.

Results: 31 patients (21 male, 10 female) median age 71 years (range 58-84), with TAAA (12 Crawford type I, 13 type III, 6 type IV), median diameter 6.4 (4.3 (mycotic)- 9.9) underwent endovascular TAAA repair (total 48 sidebranches, 26 fenestrations, 13 scallops) between July 2008 and January 2011. Median operating time 225 min (65–540 min), X-ray screening time 58 min (4–212 min), contrast dose 175 ml (70–500 ml), blood loss 325 ml (100–400 ml). Median post-operative length of hospital stay 6 days (2–22 days). Three patients (3/31, 9.7%) died within 30 days of operation: multisystem organ failure (1) acute renal failure and paraplegia (1) and paraplegia (1). There were no other cases of in-hospital organ failure, paraplegia or major complications. The median change in pre-discharge from pre-operative renal function was 3.4% deterioration in eGFR (range: 32.7% deterioration to 73.0% improvement) One patient presented with late-onset paraparesis, a second developed acute renal failure 8 months after repair. One early high-pressure endoleak (type 3) required correction. Three patients had died by median follow-up 12 months (1–36), 2 from heart disease and one from haemopericardium secondary to acute dissection of the ascending aorta (the dissection did not involve, nor extend close to, the endovascular graft).

Conclusions: Total endovascular repair of TAAA offers patients a minimally-invasive alternative to open surgery with early results at least comparable to those seen with open or hybrid surgical approaches.

Analysis of Stroke after TEVAR Involving the Aortic Arch

Melissano G., Tshomba Y., Bertoglio L., Rinaldi E., Chiesa R. Eur J Vasc Endovasc Surg 2012;43:269-75.

Objective: To analyse the incidence of stroke after thoracic endovascular aortic repair (TEVAR) for aortic arch disease.

Methods: In the last decade, 393 patients received TEVAR at our Institution; in 143 cases the aortic arch was involved (32 zones '0', 35 zones '1' and 76 zone '2'). The left subclavian artery (LSA) was revascularised selectively in 75 cases; the proximal LSA was ligated or occluded with a plug in 55 cases before endograft (EG) deployment.

Results: Initial clinical success, perioperative mortality, spinal cord ischaemia and stroke in TEVAR patients with or without arch involvement were, respectively, 86.7% vs. 94.4%, 4.2% vs. 2.4%, 2.1% vs. 3.6% and 2.8% vs. 1.2%. The stroke rate was 9.4% ($P < 0.02$) in 'zone 0', 0% in 'zone 1' and 1.3% in 'zone 2' with scans showing severe atheroma and/or thrombus in all cases. Stroke was observed in patients with 2.6% or without 2.9% LSA revascularisation; however, it was never observed in patients in whom the LSA was occluded before EG deployment and in 4.5% of patients in whom it was patent at the time of EG deployment.

Conclusions: Stroke after TEVAR is not infrequent especially when the arch is involved. Careful patient selection together with a strategy to reduce embolisation such as occlusion of supra-aortic trunks before EG deployment may play a beneficial role.

Catheter-based Radiofrequency Renal-nerve Ablation in Patients with Resistant Hypertension

Azizi M., Steichen O., Frank M., Bobrie G., Plouin P.-F., Sapoval M. Eur J Vasc Endovasc Surg 2012;43:293-9.

This review aims to describe the role and the results of catheter-based renal nerve ablation for the treatment of resistant hypertension. Despite the availability of multiple classes of orally active antihypertensive treatments, resistant hypertension remains an important public health issue in 2012 due to its prevalence and association with target-organ damage and poor prognosis. The failure of purely pharmacological approaches to treat resistant hypertension has stimulated interest in invasive device-based treatments based on old concepts. In the absence of orally active antihypertensive agents, patients with severe and complicated hypertension were widely treated by surgical denervation of the kidney until the 1960s, but this approach was associated with a high incidence of severe adverse events and a high mortality rate. A new catheter system using radiofrequency energy has been developed, allowing an endovascular approach to renal denervation and providing patients with resistant hypertension with a new therapeutic option that is less invasive than surgery and can be performed rapidly under local anaesthesia. To date, this technique has been evaluated only in open-label trials including small numbers of highly selected resistant hypertensive patients with suitable renal artery anatomy. The available evidence suggests a favourable blood pressure-lowering effect in the short term (6 months) and a low incidence of immediate local and endovascular complications. This follow-up period is, however, too short for the detection of rare or late-onset adverse events. For the time being, the benefit/risk ratio of this technique remains to be evaluated, precluding its uncontrolled and widespread use in routine practice.

When is Supervised Exercise Therapy Considered Useful in Peripheral Arterial Occlusive Disease? A Nationwide Survey among Vascular Surgeons

Lauret G.J., van Dalen H.C., Hendriks H.J., van Sterkenburg S.M., Koelemay M.J., Zeebregts C.J., Peters R.J., Teijink J.A. Eur J Vasc Endovasc Surg 2012;43:308-12.

Objectives: Although international guidelines state that supervised exercise therapy (SET) should be offered to all patients with intermittent claudication (IC), SET appears to be underutilised in clinical practice. The aim of this study was to document current opinions of Dutch vascular surgeons on SET as treatment option for peripheral arterial occlusive disease (PAOD).

Materials and methods: Vascular surgeons and fellows in vascular surgery were asked to complete a 24-question survey either at the 2011 Annual Meeting of the Dutch Society for Vascular Surgery or online.

Results: Ninety-one participants, including 83 vascular surgeons (51% of all Dutch vascular surgeons), completed the survey. The respondents would refer 75.4% of newly diagnosed patients with IC for SET. SET was considered less useful in patients with IC and major (cardiopulmonary) co-morbidity or a significant iliac artery stenosis. In critical limb ischaemia, the combination of SET and angioplasty was considered useful in 71.9%. Respondents regarded patient satisfaction (63.3%) and improvement in pain-free or maximal walking ability (26.6%) as clinically most relevant goals of SET. Most (84.4%) agreed that SET should also include lifestyle management.

Conclusion: Although the vast majority of Dutch vascular surgeons consider SET as an important treatment option for PAOD, SET should receive more emphasis in clinical practice since arguments not to refer for SET are outdated. Furthermore, vascular surgeons agree that lifestyle management should be integrated in SET.